

19. An aligning layer as in claim 16 which comprises a thin transparent  $\text{Al}_2\text{O}_3$  coating.--

#### REMARKS

Support for the amendments to claim 1 and new claim 15 with respect to the aluminum coating and smooth  $\text{Al}_2\text{O}_3$  layer is found on page 18, lines 34-35.

Support for new claims 15-19, directed to alignment layers for liquid crystal films or layers and claims 11-14, directed to the liquid crystal films or layers which contain such alignment layer is found on page 19, lines 19-32. Alignment layers of aluminum and  $\text{Al}_2\text{O}_3$  are described on these lines.

The references cited in the Information Disclosure Statement filed on April 18, 2000 were cited in parent application 09/059,297. Applicants are not required to provide copies according to 37 CFR §1.98(d). However, copies have been provided here for convenience.

#### Rejections Under 35 USC §102

The claims are now directed to alignment layers comprising aluminum coatings and thin  $\text{Al}_2\text{O}_3$  layers (claims 15-19) and liquid crystal layers or coatings which contain such alignment layers claims (1-4, 9-14). No evidence has been presented that Kato et al (U.S. Patent 5,745,205) or Ma et al. (U.S. Patent 5,056,898) disclose aluminum coatings or  $\text{Al}_2\text{O}_3$  coatings. Therefore, these references do not support a rejection under 35 USC §102(b).

Scherer (U.S. Patent 5,880,801) describes the use of anodized aluminum as an orientation layer. This layer has  $\text{Al}_2\text{O}_3$  on the outer surface which is not smooth as shown in Figure 2 of the reference. The aluminum (60) is shown to have deep pores (68) with aluminum oxide (62) providing walls for the pores (74). This configuration is distinct from the aluminum coatings and the smooth aluminum oxide ( $\text{Al}_2\text{O}_3$ ) coatings that form the alignment layers of the present invention. In addition, the anodized aluminum provides a surface roughness that is inconsistent with the smooth  $\text{Al}_2\text{O}_3$  layers used in the present invention. Based on the configuration of the aluminum layer of Scherer and the inherent surface roughness of anodized aluminum; this reference does not anticipate any claims.

### **Rejection Under §103**

As discussed above, of the references relied on, only Scherer mentions the use of an aluminum layer and this layer is anodized to be porous. The remaining references, Ohnishi (U.S.5,601,884) and Kato do not support a rejection of any claims to liquid crystal layers or alignment layers which comprise aluminum.

One skilled in the art would not be motivated to employ aluminum coatings or smooth  $\text{Al}_2\text{O}_3$  coatings in view of Scherer either alone or in combination with these references in that Scherer states in the Field of the Invention,

“The present invention relates, in general to the alignment of liquid crystals, and in particular to the homeotropic alignment of liquid crystals on porous materials.”

At column 2, lines 44-48, Scherer discusses forming a layer of porous aluminum oxide on the surface of a substrate. One skilled in the art would not be motivated to ignore the primary teachings of the Scherer reference and eliminate the anodizing step to provide an aluminum coating or form an  $\text{Al}_2\text{O}_3$  coating which is smooth. Therefore, the rejection of claims which recite such layers under 35 USC §103 based on Scherer cannot be maintained.

Based on the above remarks, Applicants submit that all claims are in the form suitable for allowance and patentable over the cited references. Therefore, withdrawal of the rejections and allowance of these claims are earnestly solicited.

Respectfully submitted,



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